

DEPARTMENT of ENVIRONMENTAL SERVICES  
Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: WALKER POND	Lake Area (ha): 70.46
Town: BOSCAWEN	Maximum depth (m): 12.8
County: Merrimack	Mean depth (m): 4.5
River Basin: Merrimack	Volume (m <sup>3</sup> ): 3205500
Latitude: 43°18'55" N	Relative depth: 1.4
Longitude: 71°41'12" W	Shore configuration: 1.34
Elevation (ft): 500	Areal water load (m/yr): 14.61
Shore length (m): 4000	Flushing rate (yr <sup>-1</sup> ): 3.20
Watershed area (ha): 2382.8	P retention coeff.: 0.51
% watershed ponded: 0.2	Lake type: natural w/dam

BIOLOGICAL:

5 February 1997

20 August 1996

DOM. PHYTOPLANKTON (% TOTAL)	#1	SPARSE - NO DOMINANT	DINOBRYON 35%
	#2		(ALL NET PLANKTON SPARSE -
	#3		NO STRONG DOMINANT)
PHYTOPLANKTON ABUNDANCE (units/mL)			
CHLOROPHYLL-A (µg/L)			11.90
DOM. ZOOPLANKTON (% TOTAL)	#1	CALANOID COPEPOD 69%	CALANOID COPEPOD 52%
	#2		CYCLOPOID COPEPOD 38%
	#3		
ROTIFERS/LITER		<1	2
MICROCRUSTACEA/LITER		13	19
ZOOPLANKTON ABUNDANCE (#/L)		13	21
VASCULAR PLANT ABUNDANCE			Abundant
SECCHI DISK TRANSPARENCY (m)			3.8
BOTTOM DISSOLVED OXYGEN (mg/L)		7.0	0.0
BACTERIA (E. coli, #/100 ml)	#1		
	#2		
	#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 5.5  
Hypolimnion volume (m<sup>3</sup>): 252250  
Anoxic volume (m<sup>3</sup>): 1056500

**CHEMICAL:**

Lake: WALKER POND

Town: BOSCAWEN

	5 February 1997		20 August 1996		
DEPTH (m)	3.5	6.5	2.0	6.0	10.0
pH (units)	6.1	6.2	7.0	6.1	6.0
A.N.C. (Alkalinity)	6.2	6.2	7.9	6.3	8.9
NITRATE NITROGEN	0.05	0.06	< 0.05	< 0.05	< 0.05
TOTAL KJELDAHL NITROGEN	0.28	0.28	0.22	0.11	0.34
TOTAL PHOSPHORUS	0.010	0.008	0.002	0.002	0.009
CONDUCTIVITY ( $\mu\text{mhos/cm}$ )	68.5	67.2	65.7	66.3	71.3
APPARENT COLOR (cpu)	36	40	32	38	76
MAGNESIUM			0.85		
CALCIUM			3.6		
SODIUM			7.1		
POTASSIUM			0.51		
CHLORIDE	11	11	10	10	11
SULFATE	5	5	3	4	4
TN : TP	33	43	110	55	38
CALCITE SATURATION INDEX			2.8		

All results in mg/L unless indicated otherwise

**TROPHIC CLASSIFICATION: 1996**

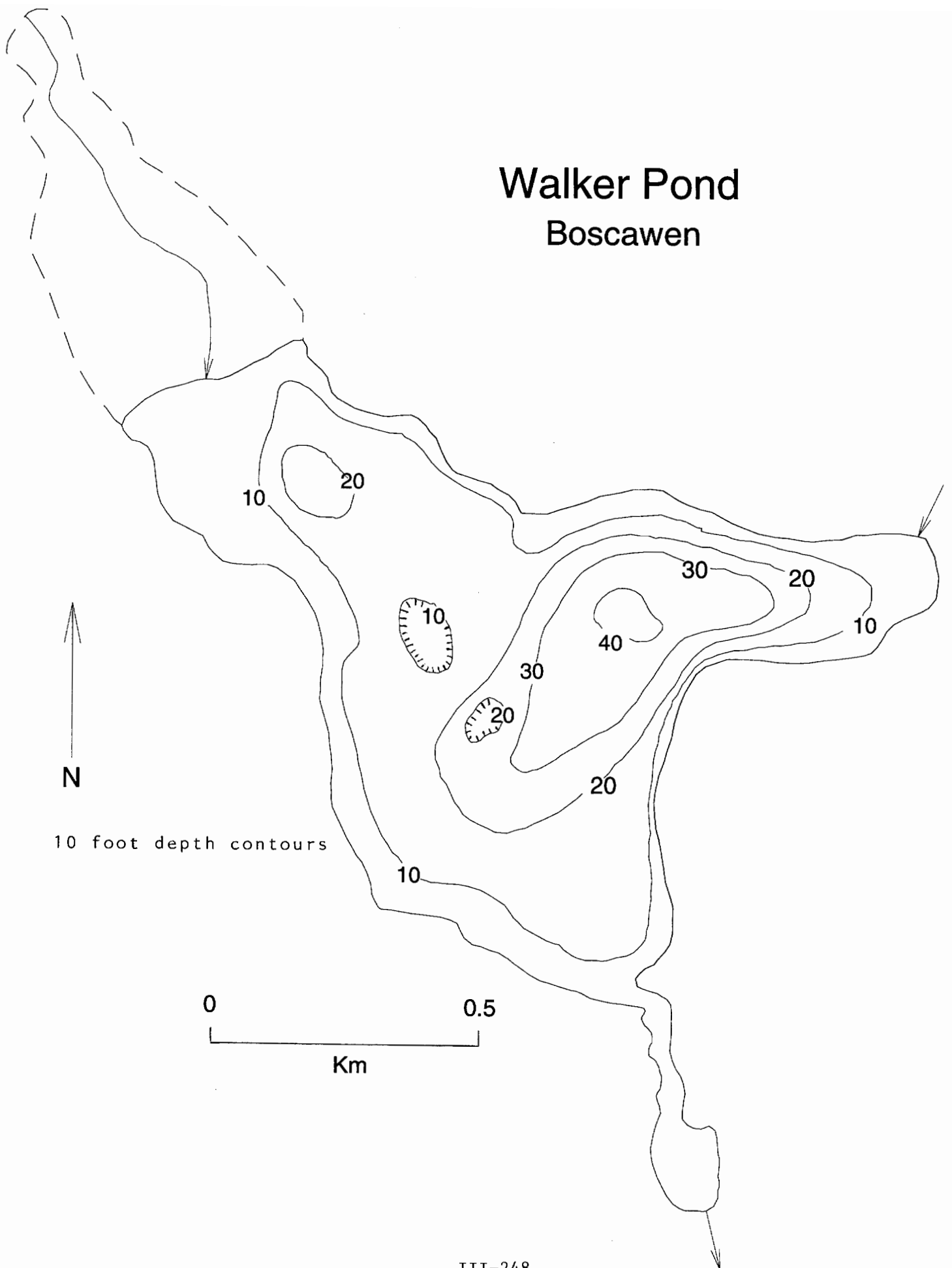
D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
4	2	5	2	13	Eutro.

**COMMENTS:**

1. Walker Pond is the former public water supply for the Town of Boscawen. It is relatively undeveloped with much of the surrounding land under conservation easements.
2. A six horsepower limit for motorboats exists for the pond.
3. Walker Pond is a light to moderately tea-colored pond with neutral pH values in the summer surface waters but mildly acidic conditions below the thermocline and during the winter where photosynthetic rates are low.
4. The pond is borderline mesotrophic/eutrophic (one less trophic point would have resulted in a mesotrophic rating), primarily because of abundant macrophyte growth and bottom dissolved oxygen depletions. Phosphorus and nitrogen values were relatively low.
5. Boat access was adjacent to the old pump house at the head of the eastern cove.
6. A weir is located at the end of the outlet cove but is no longer maintained and contains no stop logs.

# Walker Pond

## Boscawen



# FIELD DATA SHEET

LAKE: WALKER POND  
DATE: 08/20/96

TOWN: BOSCAWEN  
WEATHER: WARM, PARTLY CLOUDY, CALM

	DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
	0.1	26.0	8.2	101 %
	1.0	25.0	8.4	101 %
	2.0	23.5	8.2	95 %
	3.0	22.0	2.2	25 %
	4.0	21.0	0.0	0 %
	4.5	19.5	0.0	0 %
	5.0	18.0	0.0	0 %
	5.5	15.8	0.0	0 %
	6.0	13.5	0.0	0 %
	6.5	12.0	0.0	0 %
	7.0	10.1	0.0	0 %
	7.5	10.0	0.0	0 %
	8.0	9.0	0.0	0 %
	8.5	9.0	0.0	0 %
	9.0	8.2	0.0	0 %
	9.5	8.0	0.0	0 %
	10.0	8.0	0.0	0 %
	10.5	8.0	0.0	0 %
	11.0	8.0	0.0	0 %
	11.5	8.0	0.0	0 %
	12.0	8.0	0.0	0 %
	12.5	8.0	0.0	0 %

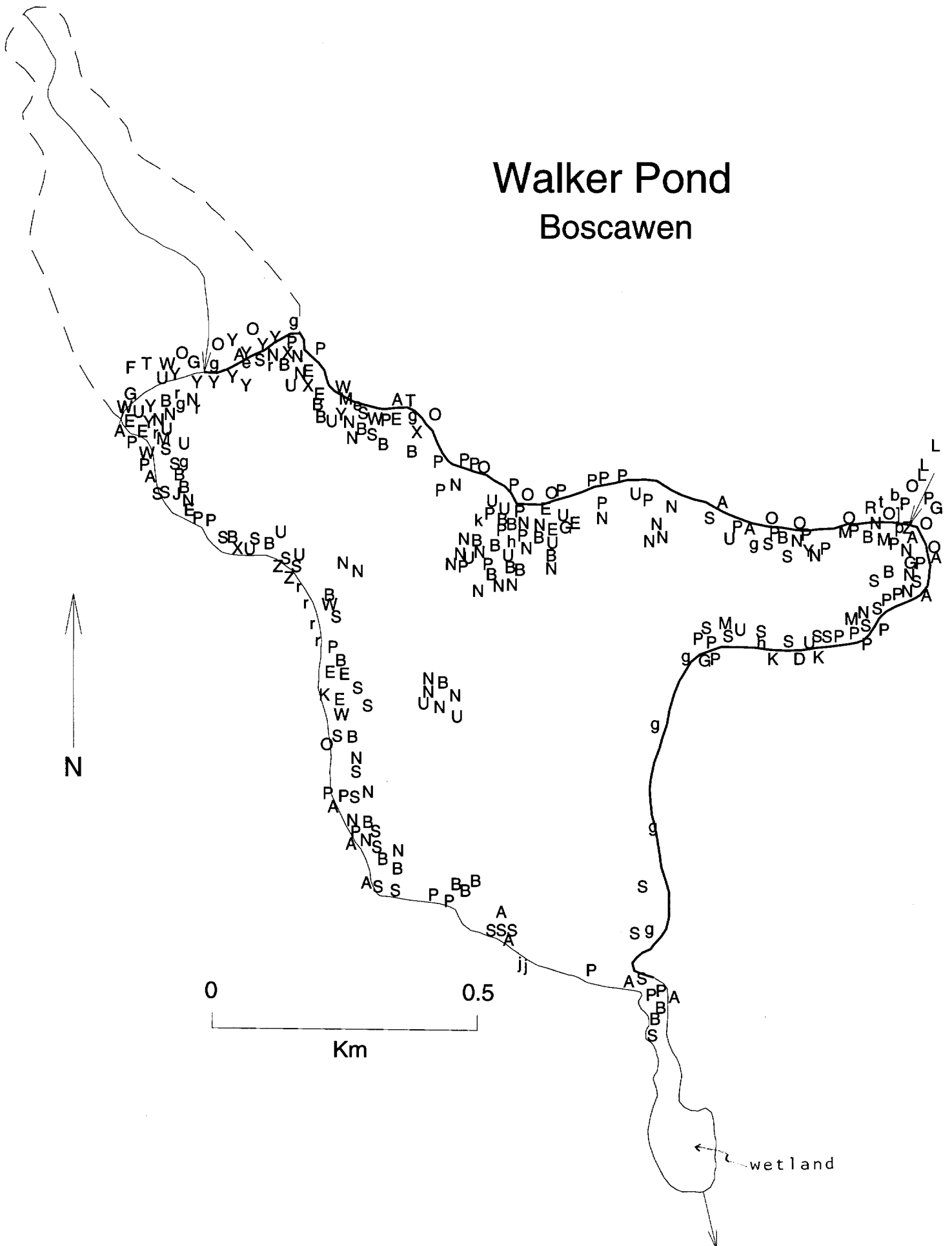
SECCHI DISK (m): 3.8  
BOTTOM DEPTH (m): 12.8  
TIME: 1830

COMMENTS: No dissolved oxygen was present below 4 meters. The entire metalimnion and hypolimnion were devoid of oxygen.

\*Dissolved oxygen values are in mg/L

# Walker Pond

## Boscawen



# AQUATIC PLANT SURVEY

LAKE: WALKER POND

TOWN: BOSCAWEN

DATE: 08/20/96

Key	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
g	Myrica gale	Sweet gale	Abundant
Q	Chamaedaphne calyculata	Leatherleaf	Abundant
B	Brasenia schreberi	Water shield	Common/Abun
S	Sparganium	Bur reed (floating leaf)	Common/Abun
U	Utricularia	Bladderwort	Abundant
O	Cephalanthus occidentalis	Buttonbush	Common
N	Nymphaea	White water lily	Common/Abun
G	Gramineae	Grass family	Scattered
P	Pontederia cordata	Pickernelweed	Common/Abun
a	Peltandra virginica	Arrow arum	Scattered
H	Hypericum	St. John's-wort	Scattered
Y	Cyperaceae	non-flowering sedge	Common
W	Potamogeton natans	Floating-leaf pondweed	Sparse
V	Vallisneria americana	Tape grass	Sparse
h	Gaylussacia	Huckleberry	Sparse
f		Filamentous algae	Sparse
D	Decodon verticillatus	Swamp loosestrife	Sparse
E	Eriocaulon septangulare	Pipewort	Sparse
C	Ceratophyllum demersum	Coontail	Sparse
I	Spongilla	Freshwater sponge	Common
b	Scirpus	Bulrush	Sparse
t	Scirpus validus	Softstem bulrush	Sparse
e	Eleocharis	Spike rush	Sparse
q	Sambucus	Elder berry	Sparse
L	Lythrum salicaria	Purple loosestrife	Sparse
F	Nymphoides cordatum	Floating heart	Sparse

OVERALL ABUNDANCE: Abundant

## GENERAL OBSERVATIONS:

1. Bladderwort was over much of the lake bottom and was more abundant than depicted on the map.
2. Plants were very abundant in the coves - both emergent and submerged plants - but the main body of the pond was open water and easily navigable.
3. An extensive wetland surrounds the major inlet stream and the outlet cove is a wetland.

[illegible]